

37<sup>36</sup> (New) The composition of claim 3<sup>36</sup> wherein the styrene polymer is styrene butadiene rubber.

38<sup>36</sup> (New) The composition of claim 3<sup>36</sup> further comprising a tackifier.

39<sup>37</sup> (New) The composition of claim 3<sup>37</sup> further comprising tackifier.

40<sup>38</sup> (New) A zero-VOC cleaning composition consisting essentially of zero-VOC solvents wherein the zero-VOC solvent is t-butyl acetate.

11<sup>10</sup> (New) The composition of claim 1<sup>10</sup> wherein the resin is a thermoplastic or thermosetting acrylic polymer.

### REMARKS

This Amendment is responsive to the Office Action issued March 3, 1999, rejecting claims 1-26 of the present application, and is responsive to issues raised by the Examiner during the interview conducted on April 8, 1999 at the U.S. Patent and Trademark Office.

Claims 1-26, along with newly added claims 27-40 (directed to more limited embodiments only), are now pending in the present application.

At this time, Applicant's would like to thank the Examiner and her supervisor for the time and efforts extended during the interview on April 8, 1999. The instant Amendment and Response are intended to be reflective of the discussion and proposed resolutions as discussed during the interview.

### The Office Action

Claims 1-26 were rejected under 35 U.S.C. §112, first paragraph, as being non-enabled.

Claims 1 and 25 were rejected under 35 U.S.C. §112, second paragraph as being indefinite.

Claims 5 and 7 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Claim 6 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Claims 11-15 and 17 were rejected was rejected under 35 U.S.C. §112, second

paragraph, as being indefinite.

Claim 25 was rejected under 35 U.S.C. §102(b) as being anticipated by **Boyles** (U.S. 3,773,676).

Claims 1-5, 7, 25 and 26 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Toyama, et al.** (U.S. 3,950,185), in view of **Boyles** (U.S. 3,773,676).

Claims 23 and 24 were rejected under 35 U.S.C. §103(a) as being patentable over **Dwyer, et al.** (U.S. 4,624,970) in view of **Ashida** (U.S. 4,898,893).

Applicant notes that claims 6, 9-18, 21 and 22 were not subject to any "prior art" - type rejections. As such, in view of the amendments to the claims to address the issues raised under 35 U.S.C. §112, first and second paragraphs, Applicant submits that should no issues remain under 35 U.S.C. §112, that claims 6, 9-18, 21 and 22 be identified as allowable.

#### **The Rejections Under 35 U.S.C. §112, first paragraph**

Initially, the Examiner rejected all of the claims (1-26) under 35 U.S.C. §112, first paragraph. The Examiner indicated that the claims, while directed to a solvent/resin blend in which said solvents are zero-VOC solvents (non-volatile), include several volatile solvents and solvents which are "not-suitable" zero-VOC solvents. For example, the Examiner has noted that the specification (p. 3, lines 13-16) identifies halogenated hydrocarbons as not suitable VOC-free solvents. However, the claims recite several halogenated hydrocarbons. In addition, methyl acetate and acetone, present in the claims, are identified by the Examiner as volatile solvents.

In response to the above-identified rejection of claims 1-26 under 35 U.S.C. §112, first paragraph, with respect to the halogenated hydrocarbons, the Applicant would like to point out to the Examiner that certain halogenated hydrocarbons are indeed *effective* zero-VOC solvents. Although *some* halogenated hydrocarbons have drawbacks which are unrelated to their zero-VOC solvent activity, rendering them less desirable than other zero-VOC solvents, they do function as zero-VOC solvents and are thus within the scope of the claimed invention. *See, In re Gardner*, 475 F.2d 1389, 177 USPQ 396 (CCPA 1973), which states that there is no requirement in Section 112 that all of the claimed compounds must possess the same degree of utility. Moreover, a close review of the specification will indicate that certain halogenated hydrocarbons are listed among the preferred embodiments (i.e., 1-bromopropane,

A

chlorobromomethane) and are not to be excluded from the claimed invention as they are effective, and in fact preferred, zero-VOC's.

With respect to the Examiner's assertion that volatile solvents are present in the claims (i.e. acetone and methyl acetate), the Applicant would like to point out to the Examiner that the zero-VOC compounds identified in the claims satisfy the benchmark requirement to qualify as zero-VOC solvents. Specifically, if a compound has a reaction rate with a hydroxyl radical and ultraviolet ("UV") light that is faster than ethane, the compound is considered a VOC solvent. (See specification at page 2, lines 9-18). As neither acetone nor methyl acetate have a reaction rate with a hydroxyl radical and UV light which is faster than the reaction rate of ethane with a hydroxyl radical and UV light, these compounds qualify as zero-VOC solvents and are thus within the scope of the claimed invention.

In view of the comments provided above and in light of the entire disclosure of the invention as provided in the specification of the present application, the Applicant submits that the entire scope of claims 1-26 is enabled within the meaning of 35 U.S.C. §112, first paragraph. As such, the Applicant respectfully requests withdrawal of the rejection of claims 1-26 under 35 U.S.C. §112, first paragraph.

#### **The Rejections Under 35 U.S.C. §112, second paragraph**

The Examiner has rejected claims 1 and 25 under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, the Examiner has indicated that the terminology "solvent-resin composition having *generally* zero volatile organic compounds is unclear with respect to the term "generally".

Applicant has now amended claim 1 by deleting the phrase "having generally zero volatile organic compounds (VOC's), the composition". In addition, in claim 25, the term "generally" has been deleted.

In view of the above identified amendments to claims 1 and 25, the Applicant submits that claims 1 and 25 are now definite within the meaning of 35 U.S.C. §112, second paragraph. As such, the Applicant respectfully requests withdrawal of the rejection of claims 1 and 25 under 35 U.S.C. §112, second paragraph.

Next, the Examiner has rejected claims 5 and 7 under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, the Examiner has identified claims 5 and 7 as containing improper "Markush" terminology.

Claims 5 and 7 have now been amended to comply with the suggested "Markush" requirements. Specifically, claim 5 has been amended to recite a series of solvents wherein the linking term has changed from "and/or" in claim 5 to -and-. Also, claim 7 has been amended to recite a series of components selected from "A, B, and C" as suggested by the Examiner.

In view of the amendments to the claims, the Applicant submits that claims 5 and 7 are now definite within the meaning of 35 U.S.C. §112, second paragraph. Withdrawal of the rejection of claims 5 and 7 under 35 U.S.C. §112, second paragraph, is respectfully requested.

Claim 6 was rejected under 35 U.S.C. §112, second paragraph as being indefinite. The Examiner has indicated that it is unclear as to whether the resin includes, or is, methyl acetate or whether the resin and methyl acetate are separate components in the composition.

Applicants have now changed the term "resin" in line 2 of claim 6, to -solvent-. As was recognized by the Examiner, methyl acetate is a solvent component and was inadvertently referred to as a resin. By changing the term "resin" to -solvent- in line 2 of claim 6, the claim is now definite within the meaning of 35 U.S.C. §112, second paragraph. As such, withdrawal of the rejection of claim 6 under 35 U.S.C. §112, second paragraph, is respectfully requested.

Finally, claims 11-15 and 17 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. The Examiner has indicated that certain dependent claims do not appear further limiting of the claims from which they depend.

Applicant has now amended claims 11-15 and 17 to address the above noted rejection by the Examiner. Specifically, claim 11 has now been placed in independent form wherein the solvent and resin components are further defined in relation to their generic terminology. Also, claims 12-15 and 17 have now been amended to further define (a) particular resin(s) and/or solvent(s).

In view of the amendments to claims 11-15 and 17, the Applicant submits that claims 11-15 and 17 are now definite within the meaning of 35 U.S.C. §112, second paragraph. As such, the Applicant respectfully requests withdrawal of the rejection of the claims 11-15 and 17 under 35 U.S.C. §112, second paragraph.

#### **Additional Issues Raised During the Interview**

In addition to the above noted rejections under 35 U.S.C. §112 issued in the Office

Action on March 3, 1999, a number of additional "definiteness" issues were raised by the Examiner during the interview. Applicant has attempted to address these issues in the present response by amending the claims as set forth below.

In addition to the amendment to claim 1, as set forth above, which addresses the issues raised by the Examiner in the Office Action of March 3, 1999, claim 1 has also been amended, as suggested during the interview, to reflect that the solvents do not contribute to the formation of ground based ozone. Support for this amendment can be found on page 3, lines 32-36 of the specification and on page 4, lines 1-11 of the specification.

Claims 5-7, 15 and 21, have also been amended, as discussed during the interview, to delete the language relating to "a portion of" the solvent combinations. Support for the mixtures, as now claimed, can be found in the specification on pages 10-13 and 15-16.

In addition, in claims 11-15 and 17, the term "approximately" was identified by the Examiner as indefinite. While Applicant does not find any ambiguity in using the term "approximately" Applicant has now deleted this term in an effort to advance prosecution of the application.

Applicant believes that the amendments to the claims, as set forth above, address the issues raised by the Examiner during the interview. Accordingly, Applicant submits that the claims are now definite within the meaning of 35 U.S.C. §112.

#### **The Rejection Under 35 U.S.C. §102(b)**

The Examiner has rejected claim 25 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,773,676 to Boyles. The Examiner states that Boyles teaches a composition comprising 55-80% by volume of a non-flammable halogenated hydrocarbon. More specifically, the Examiner identifies Example 1 of Boyles as teaching a combination of perchloroethylene, mineral spirits and methylene chloride. The Examiner is of the opinion that because claim 25 of the present application calls for "one or more zero-VOC's", and because Boyles teaches a composition which has "one or more zero-VOC's", that all features of claim 25 are taught by Boyles .

The Applicant would like to point out that the claim 25 of the application requires that the solvent composition "consists of" one or more of the specific zero-VOC solvents listed in claim 25. Because the Boyles composition *requires* a petroleum solvent such as mineral spirits (a very strong VOC solvent), the Applicant submits that the Boyles compositions are

not the same zero-VOC solvent compositions as claimed herein. (See Boyles at column 2, lines 9-11, requiring mineral spirits in an amount of 25 to 35 percent). This is because the closed language "consists of" in the present claim 25 excludes the presence of any solvent not specifically recited in claim 25, especially a VOC solvent such as mineral spirits.

In view of the above, Applicant submits that claim 25 is not anticipated under 35 U.S.C. §102(b) by Boyles. Withdrawal of the rejection is respectfully requested.

#### **The Rejections Under 35 U.S.C. §103(a)**

The Examiner has rejected claims 1-5, 7, 25, and 26 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,443,762 to Rowe.

The Examiner has identified Rowe as teaching the following:

"Rowe '762 discloses non-volatile solvent mixture for use in the formation of coatings of organic polymers and for cleaning. The reference discloses the combination of the solvent mixture with polymeric substances such as resins (polybutene, epoxy, phenolic, styrene, rosin, etc.) (See example 2). Rowe '762 acknowledges the problems of previously used solvents, such as 1,1,1-trichloroethane, in that they are ozone depleters and are environmentally unsafe. The non-volatile solvents disclosed by Rowe '762 that are environmentally safe include benzotrifluorides, such as parachlorobenzotrifluoride, and perchloroethylene, as instantly claimed. Rowe '762 also discloses the mixture of benzotrifluorides solvents with other solvents, such as perchloroethylene, and parachlorobenzotrifluoride (col. 1, lines 67-68 and col. 2, lines 1-6).

Rowe differs from the instantly claimed invention in that Rowe '762 also discloses the use of monochlorotoluene isomers in the mixture of solvents, which Applicants states as being a volatile solvent in the instant specification.

Recognizing toluene as a volatile solvent, and realizing that its presence may make the composition hazardous, it would have obvious to one of ordinary skill in the art to modify the Rowe '762 reference by removing the toluene solvent from the composition. One of ordinary skill in the art would expect that this modification would produce a non-volatile and nonflammable composition consisting essentially of a resin component and a solvent component, which is suitable for the formation of coatings and in cleaning.

Therefore, for the reasons set forth above, Applicants claimed invention is deemed to be obvious, within the meaning of 35 U.S.C. 103 in view of the teachings of Rowe '762."

The Applicant respectfully submits that Rowe '762 would not have rendered claims 1-5, 7, 25, and 26 obvious to one of ordinary skill in the art at the time the invention was made.

Rowe '762, while teaching a solvent composition in admixture with resins, fails to teach a solvent composition wherein the solvent or solvents are limited to zero-VOC solvents. For example, Rowe '762 *requires* monochlorotoluene (a VOC solvent) to be present in the solvent compositions disclosed therein. There is no suggestion or teaching *provided in Rowe* which would motivate a person of ordinary skill in the art to expect that the Rowe solvent formulation would function effectively in the absence of the VOC solvent monochlorotoluene.

As such, the Applicant submits that the Examiner has failed to provide any motivation found in the prior art which provides for such a conclusion of obviousness to remove the volatile solvent (i.e. monochlorotoluene) *required* by Rowe. The Examiner's argument that it would have been obvious to remove the volatile solvent from the Rowe composition appears to be based on hindsight in view of Applicant's disclosure. This type of conclusion is impermissible. There must be motivation in the art to achieve the claimed invention. Such motivation is not found in the cited Rowe reference.

In light of the above, the Applicant submits that claims 1-5, 7, 25, and 26 would not have been obvious to one of ordinary skill in the art at the time the invention was made in view of Rowe '762. The Applicant respectfully requests withdrawal of the rejection of claims 1-5, 7, 25, and 26 under 35 U.S.C. §103(a) over Rowe '762.

The Examiner next rejects claims 1-5, 7, 8, 19, and 20 under 35 U.S.C. §103(a) as being unpatentable over Toyama (U.S. 3,950,185) in view of Boyles (U.S. 3,773,676).

Specifically, the Examiner cites Toyama for teaching a film removing composition comprising at least one halogenated hydrogen solvent in admixture with a pressure sensitive adhesive. The halogenated hydrocarbon solvents disclosed in Toyama include certain halogenated hydrocarbon solvents present in the claims of the instant application (i.e. methylene chloride and bromochloromethane). The adhesives may be synthetic resins. However, as recognized by the Examiner, Toyama also includes solvents not specifically claimed in the present application (i.e. chloroform, carbon tetrachloride, ethylene dichloride).

*In addition, and more importantly, none of the Toyama compositions in Examples 1-6 are zero-VOC compositions.* The following Table represents the compositions of Examples 1-6 of Toyama and the volatile organic compounds contained therein:

Toyama Example No. 1	VOC
1	methanol, monoethylamine
2	methanol
3	methanol, ethyl acetate
4	toluene, methanol, monoethylamine
5	methanol, acetic, anhydride
6	methanol, formic acid

As will be readily appreciated by the Examiner, Toyama fails to recognize the critical feature of the invention of the present application which is to provide a solvent composition wherein the solvent(s) are zero-VOC solvents. Applicant submits that it is only through the present invention that a limited group of zero-VOC solvents were discovered as suitable solvents, by themselves, which are environmentally safe. There is simply no suggestion or motivation **in the prior art** which would lead one of ordinary skill in the art to expect that a zero VOC solvent composition would provide acceptable solvent activity while remaining environmentally safe.

Boyles does little, if anything, to remedy the deficiency of Toyama with respect to providing a zero-VOC solvent composition. As discussed hereinbefore, Boyles *requires* mineral spirits (a strong VOC solvent) in his composition. This is clearly the opposite of the presently claimed invention which includes solvents that are specific zero-VOC solvents.

As such, the Applicant respectfully submits that claims 1-5, 7, 8, 19, and 20 would not have been obvious to one of ordinary skill in the art at the time the invention was made in light of Toyama '185 in view of Boyles '676. The Applicant respectfully requests withdrawal of rejection of claims 1-5, 7, 8, 19, and 20 under 35 U.S.C. §103(a) over Toyama '185 in view of Boyles '676.

Finally, the Examiner has rejected claims 23 and 24 under 35 U.S.C. §103(a) as being unpatentable over Dwyer (U.S. 4,624,970) in view of Ashida (U.S. 4,898,893). The Examiner provides the following reasoning for her rejection:



"Dwyer, et al., '970 discloses a foaming system for rigid urethane and isocyanurate foams based on polyether and aromatic polyester polyols. The system comprises 2-30% by weight blowing agents, 20-80% by weight a rigid urethane polyol, 0.2-0.5% by weight an amine and/or tin catalyst, 1.5% by weight surfactant, an isocyanate compound, and optionally a fire retardant additive (col. 1, lines 25-33). The blowing agent is a blend of trichlorofluoromethane and dichlorotrifluoromethane (col. 2, lines 49-33). The isocyanate compound is pure or crude toluene diisocyanate (col. 1, lines 31-33).

Dwyer, et al., '970 differs from the instantly claimed invention in that dichlorofluoromethane is used as part of a blend in the blowing agent.

Ashida '893 teaches recognizes the environmental problems that occur when using chlorofluorocarbons such as CFC-11 (trichlorofluoromethane) as blowing agents in isocyanate-based foams. Ashida '893 suggests the alternative use of blowing agents such as HCFC-123 (dichlorotrifluoromethane) (col. 1, lines 29-33).

Realizing that trichlorofluoromethane is environmentally hazardous, it would have been obvious to one of ordinary skill in the art to modify the Dwyer, et al. '970 reference by using only dichlorotrifluoromethane as the blowing agent, and not a blend of blowing agents. One would expect that the modified composition would be similar to that claimed by Applicant, and would be a suitable blowing agent for the manufacture of resin foams."

While Applicant is of the opinion that the use of 1, 2-dichloro-1,1,1-trifluoroethane, alone or in combination with 1-bromopropane and/or chlorobromomethane would not have been an obvious combination for blowing agents, the claims (i.e. claim 23) have now been amended by deleting 1, 2-dichloro-1,1,1-trifluoroethane. Because the cited art is directed to chlorofluorocarbon solvents only, it is submitted that the rejection of original claims 23 and 24 over Dwyer, et al. in view of Ashida is now inapplicable to amended claims 23 and 24 which have no chlorofluorocarbon component.


In view of the amendment to the claims, the Applicant submits that claims 23 and 24 would not have been obvious to a person of ordinary skill in the art over the combination of

Dwyer, et al. '970 in view of Ashida '893. Withdrawal of the rejection is respectfully requested.

**Conclusion**

Applicant submits that, in view of the amendments to the claims and remarks set forth above, claims 1-40 are now in condition for allowance. Reconsideration and notification of allowability of claims 1-40 are respectfully requested. Should any issues remain, the Examiner is encouraged to contact the undersigned to attempt to resolve any such issues.

Respectfully submitted,  
FAY, SHARPE, BEALL, FAGAN,  
MINNICH & McKEE LLP

  
Timothy E. Nauman  
Reg. No. 32,283  
Brian G. Bembenick  
Reg. No. 41,463  
1100 Superior Ave. 7th Floor  
Cleveland, Ohio 44114-2518  
(216) 861-5582